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Centerline

An Environmental News Quarterly, From the NCDOT Office of Natural Environment

Viewpoint: "An Expression of Gratitude"

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This will be my last edition as Editor for "Centerline". My tenure as Manager for the Office of Natural Environment will officially end March 1, 2003, as I retire from the Department. I am extremely proud of the creation and development of this Newsletter, which was first published in April 2000. This Newsletter has been a total staff effort. With it, our staff has been able to share our Natural Resources program and other Departmental environmental accomplishments with the entire NCDOT, other State and Federal agencies and interest groups across the United States. We currently have a quarterly circulation of approximately 650 copies.

I never dreamed that 30 years of professional life could be so rewarding and stimulating and yes pass so quickly. The saying that time passes quickly when you are having fun certainly rings true for me. As I look back on my NCDOT career from 1974 to present, I can only say that I have seen much change, most of it for the better! As the first and only Biologist for the Department for 10 years, "windshield surveys" were common for many projects. Transportation Engineering Managers who at first were reluctant to hire individuals with my type of professional expertise have become some of my most valued friends and work associates. Many of them, and a large number are now retired, I hold the highest level of respect for.

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In this issue:

Two C's in Success: Cooperation and Coordination

By: LeiLani Paugh, Mitigation Implementation Team Supervisor
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So what do you do with two miles of highly degraded stream channel in a completely urban watershed that happens to be included in a FEMA buyout program? Stream restoration, of course. How do you increase your chances of making such a project a success? Cooperation and coordination.

NCDOT's Adkin Branch site in Kinston, Lenoir County is prime example of this successful combination. Currently, our Mitigation Construction Unit is coordinating with Division 2 Maintenance forces to construct a portion of the site designed by Hayes, Seay, Mattern & Mattern, Inc. as a pilot study of structures and processes in sand bed stream systems. Preston Hunter, Division 2 County Maintenance Engineer, is directing the crews as they excavate a new floodplain and channel, install in-stream log structures for stabilization and habitat, and eventually backfill the original degraded channel. Roadside Environmental Unit will replant the stream banks and buffer with native hardwood species once the construction is completed. Location & Surveys and Photogrammetry Units provided site topography and channel survey for the design and construction plans.

Jamie Lancaster, Mitigation Construction Unit engineer, reviews the site on a regular basis with Grant Ginn, HSMM design engineer, to get feedback from the construction crews and make adjustments as necessary. Preston emphasizes the importance of this coordination with the people actually doing the work to ensure everyone's expectations are met and the project is a success. He also stated that the project has been very interesting and different from their regular work; the crews have enjoyed working out of traffic for a change. Jamie commends the Division for taking on the responsibility of such a project and executing the construction so well. It has been this type of coordination and cooperation of several units

Adkins Branch in Kinston, NC in FEMA Floodplain

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I have worked under the direction of seven Branch Managers, and I am indebted to all of them as well as Department Administrators and Staff Engineers for giving me training and understanding needed for transportation planning. To the large number of Biologists and Engineers who have been a part of our Office of Natural Environment staff and worked with me over the years, I give you the credit for making our agency one of the best DOT's in the Nation. We currently have a staff of 48 individuals, a significant change from the 1970's, 80's, and early 90's. Your expertise, attitude, and professionalism have influenced our Management and Board of Transportation to approach projects in an environmentally sensitive and proactive manner. I feel that our State's citizens and environmental community should be proud that it is no longer NCDOT's sole mission to build and maintain roads, but it is to carry out a construction and maintenance program that is in balance with environmental protection. I also wish to salute the excellent work performance of past and present clerical and administrative assistants as well as Human Resources staff who have helped our office with personnel matters and staff growth.

To our State and Federal agency associates, your support and cooperation has been a key to our success. I would like to express my sincere appreciation to FHWA and the Natural Resource agencies for your role in assisting us in developing sound environmental measures and solutions. NCDOT currently has 119 mitigation sites in our program representing 20,115 acres of wetland and 234,965 feet of streams. Our $23.5 million investment in two woodpecker mitigation projects in North Carolina have occurred because of this spirit of cooperation between NCDOT, resource agencies, and non-profit conservation groups. Our staff in concert with agency assistance, continues to meet a project "let" of approximately $1 to $1.2 billion annually. Our use of Consultants has also been important to our success. Currently our staff manages 15 on-call consultant contracts totaling $16 million. These firms have shown that they care deeply about our contractual relationship by the quality of work they perform for us. Their services and expertise, and the value they provide our program as an extension of our staff, has not been taken for granted.

What will I take away with me as I leave my position? First and foremost, I will carry away a sincere appreciation for being given the opportunity to work and lead as a non-engineer in a Transportation agency that never once asked me to make decisions that would compromise my professional integrity. I will also leave with a feeling of accomplishment as I think back about the strides our agency and staff collectively have made over three decades in balancing environmental issues with development. The attitude shift and environmental stewardship that permeates through our Department has been cultivated from "top to bottom" and is truly remarkable. Upper level Management and our Board of Transportation have been instrumental in our entire Department adopting this attitude. The phrase "But we have always done it this way" no longer applies to our DOT. I will continue to follow with a great deal of interest and support the development of a Statewide Ecosystem Enhancement Program that changes the way we do mitigation and natural resource business. Regardless of who is selected to lead new EEP positions and the position from which I will be vacating, there will be challenges to meet and major opportunities ahead. I am confident that our office of Natural Environment staff, our Department, and Management, will remain committed to move forward with strategies and initiatives that lead to continued environmental stewardship and success.

Finally, I will take away positive feelings, a lot of laughs, as well as an occasional thought of those days when project issues were sometimes troubling. Most of all, I will take away a great deal of gratitude to those of you who stood with me during periods of difficult health. Thanks for your friendship and support!

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(Excavation of New Channel and Flood Plain)

within NCDOT that has allowed for the efficient and competent implementation of the Adkin Branch site plans.

However, the site would have never happened without the cooperation of the City of Kinston Engineering Department. Steve Miller and Scott Stevens, City Engineers, have been instrumental in securing approval of the project through public meetings and local contacts. Scott initially approached NCDOT with the possibility of restoring the channel within the FEMA buyout area. Steve has coordinated with other City departments to obtain approval of the no-rise certification and to identify disposal sites for the material excavated from the floodplain of the new channel. The City also coordinated with CDM Engineering to resolve and reduce conflicts of their sewer line replacement with our stream restoration design. The willingness of the City to combine their goals of flood reduction and area revitalization with our requirements for stream mitigation credits set the stage for making a complex project manageable and beneficial to all involved.

The Adkin Branch site is a model of multiple entities with often times conflicting priorities and limited resources working together towards a common goal of a successful restoration site. All parties involved have dedicated the time and effort required to move this project forward. Clearly, cooperation and coordination are the C's in success and the keys to a project like Adkin Branch.

Project Spotlight: NC 98 Bypass, South of Wake Forest, Wake County

By: Elizabeth Lusk, Environmental Specialist Supervisor
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Existing NC 98 in northern Wake County from Falls of Neuse Road through the Town of Wake Forest eastward to Jones Dairy Road is predominantly a 2-lane roadway. Traffic congestion is an everyday occurrence in the historic downtown area of this town, which is the home of what is now Wake Forest University in Winston-Salem. Founded in 1856 in the center of historic Wake Forest, Wake Forest University was moved to Winston-Salem in 1956. Since then the buildings have been home to the Southeastern Baptist Theological Seminary. Anyone who has driven on this windy two-lane road through the town quickly realizes that a bypass of the picturesque downtown has long been a necessity.

View of Main Campus Building from NC 98

In 1995 the Environmental Assessment for the NC 98 Bypass was completed by the NCDOT. The EA studied three alternatives to relieve congestion and provide a more efficient routing of the ever-growing traffic: two bypass routes south of town and the "do-nothing" alternative. The chosen alternative is a five-mile, four-lane median divided roadway with partially controlled access along the northernmost southern bypass. During the EA/FONSI process primary agency concerns questioned only partial control access, rather than full control. According to coordination with the Town of Wake Forest, they will ensure control through local zoning ordinances and subdivision regulations. Another concern was of secondary impacts. Because the project is compatible with the current Land Development Plan of Wake Forest, the local municipality is responsible for controlling new development through land use controls, zoning ordinances and subdivision regulations.

The project is divided into three Sections. The eastern-most Section C, from Jones Dairy Road to South Main Street (US 1-A), was let for construction in April 2002. The estimated completion date for this section is December 2004. Section B, from South Main Street to US 1 is scheduled for let in October 2003. Section A, the final section from US 1 to existing NC 98 just west of Falls of Neuse Road, is scheduled for let in October 2008. Project design specifies three signalized intersections at Jones Dairy Road, South Main Street, and Falls of Neuse Road. Falls of Neuse Road (a.k.a. NC 98 Business) southeast of Old NC 98 in Section A will be relocated in accordance with the Thoroughfare Plan for the Town of Wake Forest. There will be one interchange where the bypass goes over US 1.

Since the project is nearly entirely on new location, construction necessitates impacts to Waters of the U. S. in the Richland Creek and Smith Creek sub-basins of the Neuse River Basin. Impacts will occur to approximately one acre of wetlands at six wetland sites, as well as to 3,700 feet of perennial and intermittent streams at 12 sites, and Neuse River buffer at 14 sites. The largest creek, Richland Creek just east of US 1, will be bridged. The Town of Wake Forest will also include a Greenway across this creek simultaneous with road construction. Mitigation for these impacts will be conducted onsite and offsite. Approximately 380 feet of an unnamed tributary to Richland Creek, just west of US 1, will undergo Natural Stream Design, providing as much onsite stream mitigation. The Wetland Restoration Program (WRP) has provided for the remaining mitigation. The WRP has agreed to provide mitigation for impacts from the entire project with payment made for only Section C at this time. Payment for impacts from subsequent Sections will be made when designs are finalized.

There are four federally-protected species in Wake County: bald eagle, red-cockaded woodpecker, dwarf wedge mussel, and Michaux' sumac. There is no suitable habitat for the former two species. Extensive surveys were conducted for the latter two listings by NCDOT biologists. No individuals were found during the surveys. Therefore, the US Fish and Wildlife Service concurred with No Effect Biological Conclusion proposed by the NCDOT.

Extensive coordination was conducted with the Division of Water Quality to resolve buffer issues and finalize roadway design. In early Spring 2002, following completion of final design on Section C and preliminary on Sections A and B, an Individual Permit was issued by the USACE, as well as a Major 401 Certification and Neuse River Buffer Certification by the DWQ. In these permits, all three Sections of the project were permitted, with only Section C permitted to begin construction. Final design is required in order for the agencies to issue permit modifications allowing construction to commence on subsequent sections. The Let Date for Section B is fast approaching. A Merger 4B meeting will be scheduled soon.

The final goal of the project is to provide a much needed east-west connector, relieve congestion in downtown Wake Forest, enhance the economy of Wake Forest and Wake county, and provide easy access to US 1, US 1-A, and NC 98.

Effect of Shading from Bridges on Estuarine Wetlands

Principal Investigators: Stephen W. Broome, Department of Soil Science, North Carolina State University, and Christopher B. Craft, School of Public and Environmental Affairs, Indiana University

Bridges are a necessary and important part of providing good transportation routes along North Carolina's coastal mainland and to the barrier islands. In many locations, bridges span tidal marshes as well as open water. Shading from these bridges is alleged to have adverse impacts on tidal marshes, according to regulatory agencies, but the extent and severity of that impact has not been quantified. Therefore, there is a need to document the effects of bridge shading on structure and function of marshes, and to determine how these effects are altered by factors such as height, width, or orientation of the bridges. In this study, which began in July of 2000, sponsored by CTE and NCDOT in a joint environmental research initiative, Broome and Craft are determining whether shading from bridges, which span salt or brackish-water marshes, has any significant impact on marsh ecosystem structure and function.

Specific objectives of their research have been to:

·Evaluate the effects of height, width, and orientation of bridges on marsh structure and function, including emergent vegetation, soils and benthic invertebrates.

·Directly assess light attenuation by bridges using sensors to measure photosynthetic photon flux density under and near the bridges.

·Compare the relative effects of shading on growth of the dominant species of salt marshes, *Spartima alterniflora* (a C_4 plant), with the growth of the dominant species in brackish marshes *Juncis roemerianus* (a C_3 plant).

The following study sites were selected in order to provide the best opportunity to evaluate the effects of bridge height, width, and orientation (north-south versus east-west) on the degree of shading: Bogue Inlet; Cedar Island; New River; Ocean Isle; Salter Creek; Trent River; and Wrightsville Beach. These sites reflect bridges located in either salt marshes or brackish marshes.

Sample collection is complete for plant, root, soil and benthic invertebrate samples, the analysis of which is in progress. The sampling design (see figure) has been along transects perpendicular to the bridges with sampling points that vary in the amount of shading from the center of the bridge to points outside the influence of the bridge shadow. In locations where high-rise bridges were present, additional transects were located parallel to the bridge to determine effects of height.

In order to estimate primary productivity and vigor of the marsh vegetation, the following variables are being measured: aboveground biomass, number of stems, number of flowering stems, and basal area sampled at the end of each growing season. Belowground biomass is being determined by taking soil cores and washing, drying, and weighing the macroorganic matter. Benthic invertebrates present in soil samples are being enumerated and identified.

Soil nutrient pools in soil and macroorganic matter samples are being evaluated at each sampling point. Carbon and nitrogen storage in the soil is likely to reflect any variation in growth of the vegetation as affected by shading over long periods of time. Soil carbon is very important in maintaining populations of benthic invertebrates, which transfer energy produced in the marsh to the estuarine food web.

Indicators of secondary production will be number and species of infauna (benthic invertebrates), number of snails (*Littorina*), and number of fiddler crab burrows. Ninety-six percent of soil infauna samples from the 2000 sampling have been enumerated and identified. Seventy-five percent of soil infauna samples from 2001 have been sieved, enumerated, and identified.

Direct measurements of solar energy will also be made along the transects using automated recorders to determine the relationship of solar radiation to biological variables.

In March 2002, a controlled in-field study was performed using potted plants at the Cedar Island Bridge site to determine the shading effects of the bridge on seedlings of *S. alterniflora*, *Spartina patens*, and *J. roemerianus*. The pots will be removed at the end of the growing season to measure above and belowground biomass and determine the relationship of plant growth to bridge height.

Results of Broome and Craft's research will con-

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"Collecting samples at Wrightsville Beach."

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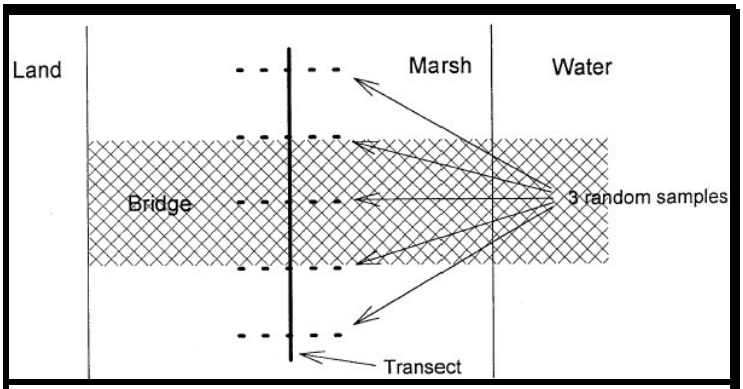

"Design for sample Collection."

tribute toward sound mitigation policy related to the bridging of tidal marshes. By quantifying the effects of bridge shading, a more objective mitigation requirement could be formulated; and if mitigation requirements were reduced or even eliminated, that would result in a reduction in bridge construction costs as well. Once the effect of bridge height and orientation has been determined, this knowledge could be applied to the design of future bridges that would minimize or even eliminate the effects of shading on estuarine wetlands.

To learn more about Broome and Craft's research, contact the investigators: Stephen Broome, (919) 513-2555, stephen_broome@ncsu.edu, or Christopher Craft, (812) 855-5971, ccraft@indiana.edu. The final report is expected in October 2003, and will be posted on CTE's Web site at http://www.itre.ncsu.edu/cte/rip_wetlands.html#broome.

This research profile appeared in the Summer 2002 issue of News and Notes, published by the Center for Transportation and Environment.

On-Site Mitigation
An efficient and low-key process that delivers big-time results.

By: Ed Lewis,
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Over the last few years, the North Carolina Department of Transportation's (Department) Office of Natural Environment has explored many avenues in providing viable wetland and stream mitigation projects. Wetland and stream mitigation is required to offset the unavoidable impacts to these resources resulting from the Department's construction of transportation projects. One of the Department's goals has been to maximize the return of every dollar invested in the mitigation program. Several avenues are utilized to provide mitigation with this goal in mind. These avenues are:

1. the "search-feasibility study-mitigation plan"
2. the "full delivery program"
3. the "purchase credits from the Wetland Restoration Program"
4. the "on-site mitigation" approach

Of these four, the on-site mitigation process is the least glamorous, but this low-key approach packs a powerful punch in delivering mitigation credits per mitigation dollars spent.

On-site mitigation describes the situation where the Department has the opportunity to restore a contiguous part of the same natural system impacted by the construction of a transportation project. The other three mitigation processes require the search of a river basin or an area identified by an 8-digit HUC code for degraded natural system sites. These sites are then formally reviewed for feasibility, a mitigation plan and design are developed, and the project is constructed. There is no formal search for the on-site mitigation. During the project development phase, Department biologists scour proposed construction corridors identifying and mapping flora, fauna, streams, wetlands, and buffers as part of the NEPA/404 merger project development process. It is during this stage that degraded natural systems can be identified as potential on-site mitigation projects. As the NEPA/404 merger process continues through the selection of the preferred alternative and the avoidance and minimization phase, on-site mitigation techniques are identified and incorporated into the Section 404 permit drawings by the Hydraulics Unit for review. These proposed techniques are also included in the construction plans prepared by the Roadway Design Unit. The project can be implemented at a lower cost than if it was a stand-alone project since there is no up-front search, feasibility, or plan costs. In addition, many of the on-site mitigation efforts do not require as stringent after construction monitoring as the other processes do, which keeps costs down. However, the real value provided by on-site mitigation is in the credit ratio of 1:1. That is, for every acre or foot of natural system impacted by a transportation project the Department is required to provide that same amount in mitigation. Compared to the other three mitigation processes which can deliver credit ratios of 2:1 or higher, on-site mitigation is a bargain.

The Department actively pursues all opportunities available to provide mitigation for unavoidable impacts to natural systems. On-site mitigation is a low-key but highly effective and efficient method of providing mitigation for the Department's transportation program.

Have You included any conservation measures in your New Year's Resolution?

NO EFFECT, NOT LIKELY TO ADVERSELY AFFECT, MAY AFFECT, UNRESOLVED, Section 7: What does it all mean?

By: Karen Lynch, Environmental Specialist
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The Endangered Species Act is comprised of 18 sections, while Section 7 (Interagency Cooperation) is most familiar to biologists and consultants with NCDOT. Administered by the U. S. Fish and Wildlife Service (USFWS) and National Marine Fisheries Service (NMFS) the Section 7 consultation process refers to the logical, orderly process whereby potential impacts to protected species are considered during the environmental analyses of a project. The Section 7 consultation process may contain an "Informal Consultation" (an optional component consisting of communications typically between NCDOT and the USFWS/ NMFS) or a more involved "Formal Consultation." Consultations involve the Service (USFWS/ NMFS) and the action agency (Federal Highways Administration - FHWA) or a non-federal representative and in North Carolina, the FHWA has delegated the NCDOT as its non-federal representative.

Projects needing protected species surveys are those that receive federal funding or projects where a federal permit is required (e.g. 404 Corps of Engineers Permit). In addition, NCDOT has obligations under Section 9 (Prohibited Acts), so surveys for animals are done on non-federal projects as well. Section 7 applies to federally threatened or endangered plants and animals; in addition geographical areas designated as critical habitat for animals are also subject to the Section 7 consultation process.

Often federally-listed species are dismissed from occurring within project boundaries during the course of environmental analyses. Because of lack of specific habitat (high elevation seeps, cliffs, spray zones, etc.) a plant or animal species may be determined to not be present within project boundaries. When such is the case, a Biological Conclusion of NO EFFECT is rendered and is discussed in the Natural Resources Technical Report (and subsequent environmental documents). Sometimes a conclusion of likely impacts to a species may be left UNRESOLVED in the environmental document until it can be surveyed for at the appropriate time of year (such as during the flowering season).

Confusion arises when the maze of alternate pathways must be followed to determine the consequences of federal actions on protected species. If a project is determined to potentially affect a species (MAY AFFECT), this descriptor must be refined to either LIKELY TO ADVERSELY AFFECT or NOT LIKELY TO ADVERSELY AFFECT. If potential habitat exists for a species and a search is conducted and the protected species is not present, then the appropriate conclusion reached is NOT LIKELY TO ADVERSELY AFFECT. This conclusion represents a recent change from previous conclusions whereby NCDOT would conduct a search and if no species were found a conclusion of NO EFFECT was formerly reached.

In addition, if a protected species is known to occur or is very likely present, but the action agency (or the non-federal representative – NCDOT in NC) is taking extreme precautions so that the federally-protected species will not be affected, then NOT LIKELY TO ADVERSELY AFFECT is also the appropriate call. When this conclusion (NOT LIKELY TO ADVERSELY AFFECT) is reached, and the Service concurs (in writing) then the action agency's responsibilities under Section 7 have been fulfilled and the consultation process is concluded informally.

Conversely, when a species may be adversely affected by an action, even with avoidance and minimization, the resultant conclusion is LIKELY TO ADVERSELY AFFECT. Once a project reaches this status, a written request for formal consultation is initiated by submittal of a Biological Assessment (BA), from FHWA, although the BA is typically written by NCDOT biologists. Biological Assessments contains information including species' life history, habitat, status and threats. This document will also discuss conservation measures available as well as potential effects to the species. The Service will then incorporate information from the BA to facilitate forming a Biological Opinion. This Biological Opinion states whether or not in the opinion of the Service the federal action will threaten the continued existence of a species.

In the case of NO JEOPARDY, the Service issues an " incidental take statement" (only applies to protected animals, and not plants) that spells out the number of protected species that may be incidentally injured or killed. During the course of project construction, this number must not be exceeded. In addition, the Service lists reasonable and prudent measures or precautions to safeguard against further environmental degradation, thus concluding the formal Section 7 process. All efforts are made to avoid taking species and it is hopeful with communication and strict adherence to erosion control, regulations, etc, there will be no protected species taken; however in some instances, it is unavoidable.

Finally, in the case of a JEOPARDY call, the project will be stopped. It's back to the drawing board to revise or abandon the project if a species' continued existence is in jeopardy. Typically with communication and advanced planning, minimization and avoidance, projects rarely reach JEOPARDY status.

A Dam Story

By: James J. Rerko, Division 6 Environmental Officer
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DEO Perspective: Featuring an article from a Division Environmental Officer. This quarter's segment is brought to us by Division 6, located in the Piedmont reaches of the state.

While scanning a recent Civil Engineering News edition, I noticed that the U.S. House of Representatives reauthorized the National Dam Safety Program. An interesting fact did pop up in the article, "58 percent of the dams in the United States are privately owned." The public enjoys access to water, but, dams do encroach upon NCDOT Right-of-Ways.

My first encounter with a dam coincidentally occurred one year to the day that this article was started. I was conducting a Secondary Roads review for Robeson County and was traveling along SR 1108. SR 1108 is paved for ¾ mile to the point where the road crosses over the embankment of Maxton Pond. From there it is dirt until you reach the western side of the pond. I said pond, but, in reality, it's a dam.

Shoe Heel Creek flows into Maxton Pond with a contributory drainage area of several square miles. NCDENR Dam Safety exerts jurisdiction if a dam has a maximum height of 15 feet and a storage capacity of 10 acre-feet or more. Maxton Pond meets and exceeds those criteria. To make matters worse, Maxton Pond has two spillways that are spanned by NCDOT Bridges. TIP B-4618 will replace bridge 445 in the year 2007. Bridge 445 is severely deteriorated. Underwater Inspections reveal that there are several voids around the substructure and Bridge Maintenance has completed many repairs to date. Replacement of the bridge would be a modification to the dam, according to spokespeople from NCDENR Dam Safety. The spillways, which are connected to the bridges, must also be replaced.

NCDOT had obtained the necessary Right-of-Way several years ago to complete the improvements to SR 1108, i.e. grade, drain, base and pave. SR 1108 occupies an approximate footprint of 52 feet across the Maxton Pond corridor, assuming an 18-foot roadway with 1:1 side slopes. To improve SR 1108 to current Secondary Road standards, the footprint would be doubled to 104 feet yielding a potential wetland impact of 2.5 acres. Embankment stability during the driving of piles for the bridge construction would pose vibratory concerns. Without knowing the material make-up and the construction methods, the entire embankment would have to be analyzed and brought up to current dam safety standards.

NCDOT has historically had a policy where the dam owners provide the engineering and certification for the dam structure and the Division of Highways would participate in the costs. The amount of participation would be based on what is required to remove and replace the structure and embankment to meet highways needs. A project of this nature would be especially difficult for an individual to undertake.

Three alternatives developed during the review of this project: 1. Bring SR 1108 up to current secondary road standards and replace the bridges with the dam owner participating in the costs of the engineering, spillway and embankment work. 2. Relocate SR 1108 approximately 400 feet south of the existing road and away from the dam. 3. Abandon SR 1108 along the embankment, reverting ownership of the Right-of-Way back to the dam owner.

Alternatives 1 and 2 will require an Individual Permit from the Corps of Engineers, and, there is concern that NCDOT would not overcome the purpose and need for the project. Two school buses cross the dam along SR 1108. Further weight restriction will reduce the number to zero. Abandonment could be the alternative of choice. Typically, in the permitting sector, the "No Impact Scenario" is the alternative that demonstrates that status quo is not the best alternative. In this case, the "No Impact Scenario" might be the right alternative.

"Looking across Bridge 445 at Maxton Pond"

"WE ARE MOVING"

By: Phil Harris, P.E.
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That is correct. The Office of Natural Environment and the Office of Human Environment of the PDEA Branch are moving in January to a new location. The current plan is that January 13-17, 2003 will be "moving week". During this week, office computers and some furniture will be relocated to the Parker-Lincoln Building located at 2728 Capital Boulevard, Raleigh, NC 27604. On January 20th, our central phone numbers will be: (919) 715-1332, 715-1333, 715-1334, and 715-1335.

Our staff appreciates your patience and continued corporation as these two offices relocate. The Project Planning Group of PDEA will remain on the 4th floor in the Transportation Building in downtown Raleigh. Dr. Greg Thorpe, Branch Manager, will keep his office in the Transportation Building. His phone number will remain (919) 733-3141.

Bird Island Coastal Reserve Dedication

By: Locke Milholland, Environmental Specialist
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On October 17, 2002, North Carolina's Governor Mike Easley, NCDOT Secretary Lyndo Tippett, and DENR Secretary, Bill Ross, participated in the Bird Island dedication. The ceremony marked the inclusion of over 1,000 acres of unique coastal habitat into preservation. Many individuals participated in the protection of this valuable resource including Mr. Roger Sheats, Deputy Secretary for Transportation, who was present and recognized for his efforts. The portion of Bird Island was purchased from the Price family of Greensboro. The site is included as a coastal reserve under the Division of Coastal Management Coastal Reserve Program and is to be protected in perpetuity.

Governor Easley noted in his address that the acquisition of this tract of land was a collaborative effort by state agencies, legislators and local non-profit organizations. The Bird Island Preservation Society, N.C. Coastal Land Trust, N.C. Coastal Federation, North Carolina Department of Environment and Natural Resources and NCDOT, all worked hard to acquire and protect the site. Major funding sources in addition to NCDOT were the Clean Water Management Trust Fund and the Natural Heritage Trust Fund. The later two groups are interested in protecting important natural environmental areas.

Bird Island is located in Brunswick County. and like Prior to site acquisition the island was subject to heavy development pressures. Preserving the site

"View of the Beach and Island"

tect 147 acres of upland and 1,150 acres of marsh and wetlands. More than a mile of shoreline on each side of the Island will be protected.

Bird Island supports habitat for a variety of rare species. The Island is refuge for the State and Federally listed plant, seabeach amaranth. The threatened loggerhead turtle and the endangered Kemp's ridley sea turtle use the site for nesting. The habitat is also utilized by the endangered wood stork, threatened piping plover, and a State species of concern the black skimmer.

As noted above, Bird Island will be managed by The Division of Coastal Management's Coastal Reserve program. The management goals include research, and educational and recreational uses. NCDOT is proud of its role in helping the Bird Island tract to be included among the State's valuable resources.

DETOURS

Look what a Gator Bowl Berth against the Fighting Irish and a trip to Jacksonville does for a Wolfpack fan!

Can you identify the Natural Systems Engineer in this photo who attended the game?

A) Jamie Lancaster

B) Randy Griffin

C) Phil Harris

D) Bryon Moore

Upcoming Workshops and Conferences

Mark your calendars for the following environmental-related conferences, workshops and training opportunities:

Division Sediment and Erosion Control Training Sessions. Division Maintenance and District Design staff will be trained in erosion control plan design, field implementation, and maintenance of temporary sediment and erosion control devices. Roadside Environmental Field Operations Engineers and Central Unit staff will lead these training sessions. The training sessions will be delivered January through March, 2003 throughout the divisions across the state. Contact Ted Sherrod at (919) 733-2920 or tsherrod@dot.state.nc.us for more information.

Sensitive Solutions: "Thinking Beyond the Pavement". Beginning February 25-27, 2003, "Thinking Beyond the Pavement" will be delivered to 400 of a cross section of the department's planning, design, construction and maintenance staff and some private engineering firms. Approximately 1600 additional people, including Rural and Metropolitan Planning Organization staff, city planners, resource agencies and other NCDOT personnel, will be offered the training beginning in mid-2003. This course focuses on changing the paradigm from the traditional thought of modifying the natural and human environment to accept transportation infrastructure to a mindset of modifying transportation infrastructure to compliment the natural and human environment. For more information, please contact Jim Kellenberger, Division of Highways Training Administrator, at (919) 733-7384 or jkellenberger@dot.state.nc.us.

Mollusk Training. North Carolina is pleased to host the 2003 Symposium of the Freshwater Mollusk Conservation Society. The symposium will be held at the Sheraton Imperial Hotel in Durham, NC on March 16 –19, 2003. The Theme for the Conference is "Connections...A Focus on Habitat Conservation." Symposium information and the registration form are found at the following address: http://ellipse.inhs.uiuc.edu/FMCS/Symposium/ We welcome your involvement in this very important event. Come discover why so many people are working to conserve these valuable aquatic resources and how you can assist in this effort.

Construction and Maintenance Best Management Practices Manual Training. This training will be provided to NCDOT division field personnel in conjunction with the completion and subsequent field distribution of the Construction and Maintenance Best Management Practices manual. Training will be held throughout the state beginning in Spring, 2003. For more information, please contact Ken Pace at (919) 733-2920 or kpace@dot.state.nc.us.

Indirect and Cumulative Impact (ICI) Assessment. One-day and more intensive three-day classes will be held between April 1-July 1 and between September 1-December 1. The purpose of the course is to instruct people in

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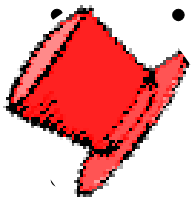

Hat's Off to Tim Bassette

Congratulations on your recent promotion! Tim is an Environmental Specialist in the TIP Project Management Unit directed by Lindsey Riddick. Please join us in congratulating Tim as he transitions into this new role.

Hat's Off to Chris Rivenbark

Congratulations is also extended to this staff member on his recent promotion! As an Environmental Specialist in the Mitigation Implementation Team, Chris works under the direction of LeiLani Paugh. Please join us in congratulating Chris as he assumes his new role.

Hat's Off to Lindsey Riddick

Congratulations Lindsey and Fran! Environmental Specialist Supervisor, Lindsey Riddick recently was married to Fran Piscitelli on November 16, 2002 . We wish the newlyweds much love and happiness. Fran, welcome to our family.

Recent Permit Acquisitions!*

The Permits and Natural Resources TIP Management Team is under the direction of Randy Turner.

A job well done!!! Alice Gordon acquired the environmental permits for the proposed Guilford College Road improvements in Greensboro (U-2913)! This long-awaited project will go a long way toward alleviating congestion in that part of the city.

Alice also obtained the permits for R-2001A which is the widening of NC11 in Lenoir County. This project is the final link upgrading NC 11 in Lenoir County. This was the first project to successfully use part of the new Merger 01 process and also the first project to use a full delivery mitigation site (Bear Creek) for wetland mitigation.

Heather Montague deserves special credit for obtaining 11 permits during the last three months.

Kudos to the team of specialists who helped us acquire the permits for R-210, the Vass Bypass in Moore County.

**New Feature Column.*

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the use of the NCDOT Guidance for Assessing Indirect and Cumulative Impacts for Transportation Projects. Which class you attend depends on how much information you want about ICI assessment. For more information or to register for an upcoming class, please contact Ms. Gail Grimes, NCDOT Project Development and Environmental Analysis Branch, at (919) 733-7384 or email at ggrimes@dot.state.nc.us.

FHWA Southern Environmental Resource Center's Environmental Stewardship and Streamlining Conference. The conference, which will be held May 19-21, 2003 in Raleigh, North Carolina, will focus on emerging issues and best practices related to environmental stewardship and streamlining. For more information, contact Julie Hunkins at (919) 733-7384 or jhunkins@dot.state.nc.us.

Transportation Research Board's A1F02 Committee Meeting. The Summer meeting of the Transportation Research Board's AF102 Committee on Environmental Analysis will be held July 14-17, 2003 in Wilmington, North Carolina. Various technical sessions and a field trip to the Smith Creek Parkway project are among the highlights of this meeting. For more information, contact James Martin at the Center for Transportation and the Environment, at (919) 515-8620 or jbm@unity.ncsu.edu.

2002 Exemplary Environmental Accomplishments

By: Erhen D. Meister, NC Governor's Public Management Fellow
emeister@dot.state.nc.us

Over the past year, NCDOT made great strides in environmental stewardship.

- The Board of Transportation adopted the Department's first environmental stewardship policy, which stresses the importance of balancing daily operations and environmental responsibility.
- NCDOT embarked on a new partnership -- called the Ecosystem Enhancement Program (EEP) -- with DENR and the U.S. Army Corps of Engineers that will allow the Department to identify mitigation sites in advance of construction, which will save time and reduce costs throughout the planning process.
- The Department won national Innovation Awards from the National Association of Development Organizations Research Foundation, which is based in Washington, D.C. for both the EEP and the Air Quality Roundtable -- an on-going series of workshops bringing together 30 different groups to cooperatively work to improve North Carolina's air quality as it relates to transportation.
- NCDOT acquired 2,500 acres of land in Hoke County to establish a preserve for the federally-endangered red-cockaded woodpecker. This acquisition will preserve five colonies of woodpeckers and link an important ecosystem of long leaf pines throughout the Southeast.
- NCDOT contributed $720,000 towards the purchase of Bird Island, the last privately-owned barrier island, which will now be part of the N.C. Coastal Reserve System and be preserved from development forever.
- The Department celebrated the completion of the U.S. 64/264 Manteo Bypass and the Virginia Dare Memorial Bridge over the Croatan Sound. Because of the high quality of the wetlands along the Croatan Sound, NCDOT bridged the entire 3,000 feet of coastal marsh.
- The Department partnered with N.C. State University to conduct research on the best sediment and erosion control methods to improve water quality across the state. Research includes the investigation of the possible use of polyacrylamide - a synthetic polymer that binds soil together - for sediment and erosion control, new erosion control devices and designs and new construction techniques to avoid degradation of natural resources. As new techniques are identified and proven to be effective, they will be implemented into Departmental policies and designs.
- In an effort to improve the workflow effectiveness and efficiency of the environmental permit development, coordination, and issuance process, NCDOT, in partnership with the NC Department of Environment and Natural Resources and the US Army Corps of Engineers, sponsored a process improvement initiative. This initiative was undertaken with the primary purpose of developing quality permit applications and issuing environmental permits that support the timely delivery of the transportation program while minimizing impacts to the natural and human environment. The improved efficiency of the new process coupled with the increased consideration of high quality resources will result in the timely delivery of transportation projects with better environmental protection.
- During the 2002 Spring Litter Sweep, 3.5 million pounds of litter were collected, 1.4 million pounds more than the previous year.
- During the Fall 2002 Sweep, 2.6 million pounds of litter were removed from the roadsides.
- NCDOT's Recycle, Reuse and Reduce Program saved the Department more than $1.4 million through the sale of recycled materials and avoiding disposal costs. In addition, more than 56.2 million pounds of material was recycled and diverted from landfills.

Randy Griffin

Randy Griffin is a Natural Systems Engineer in the Office of Natural Environment, NCDOT. He received a bachelor's of Science degree in Biological and Agricultural Engineering from North Carolina State University. Randy began working part-time in May 1993 with the Department while still in school. His position was as an Engineering Technician in the Roadside Environmental Unit located in Raleigh.

After college graduation in 1994, Randy obtained a permanent position as an Engineering Technician in the Area Roadside Environmental Unit Office in Divisions 2 & 4. In June 1997 he was promoted to the position of Environmental Engineer in the Roadside Environmental Unit. His primary responsibilities included Erosion Control Design and Wetland Mitigation Design, Implementation, and Monitoring.

Randy joined the Project Development and Environmental Analysis Branch as a Natural Systems Engineer in February 1999. He is currently the Stream and Wetland Mitigation Design/ Construction/Monitoring Unit Head within the Office of the Natural Environment. He received this position in June 2002. In this role, he is responsible for managing a team of engineers in all aspects of mitigation design, construction, and monitoring for NCDOT's statewide mitigation program. Randy is also a Certified Professional in Erosion and Sediment Control (CPESC). His leadership, knowledge, and skills are extremely valuable to the entire department.

Randy is originally from Rocky Mount, NC. He Currently resides in Nash County with his Wife, Renee, and Daughter, Miranda. In his off-hours, Randy enjoys water skiing, weight lifting, auto racing, and hanging out at Lake Gaston.

LeiLani Paugh

LeiLani Paugh graduated from North Carolina State University in 1995 with a Bachelor of Science in Fisheries and Wildlife Science. She worked in the Biological Assessment Unit at Carolina Power & Light Company until returning to NCSU in 1996. She graduated in 1998 with a Master's of Natural Resource Management (Hydrology Concentration) and a minor in Soil Science. She joined NCDOT in June 1998 as a mitigation specialist on Dave Schiller's team. Currently, she is a Team Supervisor in the Mitigation Implementation Unit headed by Bruce Ellis. This Unit is responsible for identifying, analyzing, and planning wetland and stream restoration projects across the state. She manages multiple contracts with environmental and engineering firms to develop mitigation plans and designs for wetland and stream restoration projects.

LeiLani is originally from Augusta, Georgia. She currently resides in Zebulon, North Carolina with her husband Bill, three teenage boys, Russell, Billy, and Robby, two cats, and one dog. In addition to a full house, LeiLani has a full schedule. She participates in church missions at Beulah Christian Baptist, assists with her sons' Boy Scout activities, and is a self-proclaimed soccer mom. It is evident that LeiLani puts as much effort into her home life as she does in her work. LeiLani is a valuable member of the DOT staff and a pleasure to work with.

Farewell to Ed Lewis, Tim Howell, Alexis Baker, Jeff Burleson and Jerry Parker

- Ed Lewis recently joined the PDEA Office of Human Environment in September. Best wishes Ed!
- Tim Howell left our staff in November for a permanent position with the Department of Forestry at NC State University.
- Alexis Baker's last day at NCDOT was December 20, 2002. She has accepted an assistantship and is attending UNC Charlotte to obtain a Graduate Degree in Geography and Community Planning.
- Jeff Burleson tendered his resignation on January 3, 2003 to pursue an opportunity with a Timber Company in Conway, South Carolina.
- Jerry Parker's last day was December 20, 2002. In his new position he will be a Division Environmental Officer for Division 7.

We will miss each of you and we appreciate all of your hard work while a member of our Office of Natural Environment staff!

Welcome Gene Nocerino, Logan Williams, and Beth Smyre

- Gene Nocerino joined our staff as an Environmental Specialist in November. He will work with the Mitigation Implementation Team under the direction of Mr. Phillip Todd. Gene was previously employed with NC State University.
- Logan Williams has returned to our staff after a 1 1/2 year absence. Logan will serve as an Unique Technical Specialist in the Section 7/Special Studies Section under Team Leader, Hal Bain.
- Beth Smyre has recently completed her Master's Degree from the University of Florida and will also rejoin our staff in January 2003 as a Transportation Engineer in the Mitigation Monitoring Team under Randy Griffin. Please join us in welcoming and congratulating all of these staff members as they assume their new roles.

Detour Answer: C) Phil Harris is the Wolfpack Fan in the photo.

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Our Mission Statement

Each of the teams in the Office of Natural Environment is responsible for natural resource investigations, obtaining environmental permits, developing wetland and stream mitigation plans, and implementing the construction of mitigation sites.

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